Original Article

The effect of cycling on sexual health in men

Nifahmee Hayiniloh, Nattapong Wongwattanasatien, Vorapot Choonhaklai, Viroj Chittchang, Somkiat Pumpaisanchai, Tanet Thaidumrong, Sermsin Sindhubodee, Chawawat Kosrisirikul, Matchima Huabkong

Division of Urology, Department of Surgery, Rajavithi Hospital, Bangkok, Thailand

Keywords:
cycling,
erectile dysfunction,
IIEF-15

Abstract

Objective: To study the effects of cycling and factors such as hardware and riding position on sexual health in male cyclists.

Material and method: A total of 125 sexually active male cyclists 18 years and over were surveyed using the International Index of Erectile Function (IIEF-15) questionnaire. The results were compared with 125 men who exercise by running and 125 men who do not exercise. Type of bicycle, type of saddle, cycling position, bike fit, duration of each session of cycling and total time from starting to cycle until now were collected in the cycling group.

Result: There was no significant difference of demographic data except BMI in the cycling group, running group and males who do not exercise group (44.58, 44.86 and 44.75 years old, respectively). The mean total IIEF-15 score in the erectile function domains were significantly higher in the cycling and running groups compared with the no exercise group (22.14, 21.83 and 19.65, respectively) ($p<0.001$). There were no significant differences in the orgasmic function domain, sexual desire domain, intercourse satisfaction domain, and the overall satisfaction domain in all 3 groups ($p>0.05$). There were no significant differences in all the cycling factors on erectile function except for the cycling positions of 30 degrees, 60 degrees and 90 degrees, respectively (28.33 vs. 22.54 vs. 19.33 $p<0.001$).

Conclusion: Both cycling and running can improve sexual health in men in the erectile function domain compared with men who do not exercise, and cycling has no hazardous effect on sexual health in men.

Corresponding author: Nifahmee Hayiniloh, Division of Urology, Department of Surgery, Rajavithi Hospital, Bangkok, Thailand

Email: dr_nifahmee@hotmail.com

นิพนธ์ต้นฉบับ

ผลของการปั่นจักรยานเพื่อการออกกำลังกายต่อสุขภาพทางเพศในชาย

นิฟะห์มี หะยีนิเลาะ, ณัฐพงศ์ วงศ์วัฒนาเสถียร, วรพจน์ ชุณหคล้าย, วิโรจน์ จิตต์แจ้ง, สมเกียรติ พุ่มไพศาลชัย, ธเนศ ไทยดำรงค์, เสริมสิน สินธุบดี, ชววรรธน์ โกสีย์ศิริกุล, มัชฌิมา ฮวบกอง

หน่วยศัลยศาสตร์ระบบปัสสาวะ กลุ่มงานศัลยกรรม โรงพยาบาลราชวิถี กรุงเทพฯ

คำสำคัญ:
การปั่นจักรยาน,
สุขภาพทางเพศในชาย,
IIEF-15

บทคัดย่อ

วัตถุประสงค์: ศึกษาผลของการออกกำลังกายด้วยการปั่นจักรยานต่อสุขภาพทางเพศในชาย และศึกษาถึงปัจจัยต่างๆ ของจักรยานที่ส่งผลต่อสุขภาพทางเพศในชาย

ผู้ป่วยและวิธีการศึกษา: นักปั่นจักรยานชายอายุ 18 ปีขึ้นไป ที่มีเพศสัมพันธ์ได้ จำนวน 125 คน ทำการสำรวจสุขภาพเพศชายโดยใช้แบบประเมิน International index of erectile function (IIEF-15) โดยเปรียบเทียบกับชายที่ออกกำลังกายด้วยการวิ่ง 125 คน และชายที่ไม่ออกกำลังกาย 125 คน ชนิดของจักรยาน การปรับตั้งจักรยาน ชนิดของอานจักรยาน ท่าทางการปั่นจักรยาน ระยะเวลาในการปั่นจักรยานแต่ละครั้ง และระยะเวลาตั้งแต่เริ่มปั่นจนปัจจุบันได้ถูกบันทึกในกลุ่มนักปั่นจักรยานชาย

ผลการศึกษา: ไม่มีความแตกต่างของอายุเฉลี่ยของนักปั่นจักรยานชาย นักวิ่งชาย และชายที่ไม่ออกกำลังกาย 44.58, 44.86 และ 44.75 ปี ตามลำดับ กลุ่มของนักปั่นจักรยานชายและนักวิ่งชายมีค่าเฉลี่ยคะแนน IIEF-15 ในด้านการแข็งตัวของอวัยวะเพศสูงกว่ากลุ่มชายที่ไม่ออกกำลังกายคือ 22.14, 21.83 และ 19.65 ตามลำดับ ($p<0.001$) และพบว่าไม่มีความแตกต่างกันของ IIEF-15 ในด้านการถึงจุดสุดยอด ความต้องการทางเพศ ความพึงพอใจในการมีเพศสัมพันธ์ และความพึงพอใจรวมในทั้ง 3 กลุ่ม ($p>0.05$) นอกจากนี้ ยังไม่พบความแตกต่างในด้านปัจจัยของการปั่นจักรยานที่ส่งผลต่อสุขภาพทางเพศในชาย ยกเว้นท่าทางในการปั่นจักรยานโดยที่ค่าเฉลี่ยคะแนน IIEF-15 ในกลุ่มที่ปั่นด้วยท่าทางนั่ง 30 องศา, 60 องศา และ 90 องศา ตามลำดับ (28.33, 22.54, 19.33 $p<0.001$)

สรุป: ทั้งการออกกำลังกายด้วยการปั่นจักรยานและการออกกำลังกายด้วยการวิ่ง สามารถทำให้สุขภาพทางเพศในชายดีขึ้น เมื่อเทียบกับชายที่ไม่ออกกำลังกาย และการปั่นจักรยานไม่มีผลต่อสุขภาพทางเพศในชาย

ผู้นิพนธ์หลัก: นิฟะห์มี หะยีนิเลาะ
ที่อยู่: หน่วยศัลยศาสตร์ระบบปัสสาวะ กลุ่มงานศัลยกรรม โรงพยาบาลราชวิถี กรุงเทพฯ
E-mail: dr_nifahmee@hotmail.com

Introduction

At present, people are more health conscious. Exercise can reduce the chances of cardiovascular disease, diabetes mellitus, hypertension and dyslipidemia, all of which may lead to a lowering of the risk of morbidity and mortality[1], which is a big problem for the global health system. There are reports that exercise can improve men's sexual health and overall health in general[2].

Cycling is one of the aerobic exercises that have a low impact on bones and joints; it strengthens the cardiovascular system, prevents complications from high blood pressure, diabetes and stroke. Currently there are many people interested in cycling for exercise. In 2015, there were 2,250,000 cyclists in Thailand, including 2,100,000 cyclists in the countryside and 150,000 in Bangkok[3].

Prolonged sitting on a bicycle saddle can cause pressure on the perineal area. There have been reports of long distance cyclists having genital numbness after cycling[4] and significant decreases in the oxygen content of the peripheral blood vessels while cycling[5,6]. There are concerns among male cyclists that cycling might affect their sexual health.

Material and method

1. Study design

This was a cross-sectional study conducted from September 2016 to April 2017. Three hundred and twenty-five males aged more than 18 years who were sexually activity with permanent partners were enrolled in this study. The exclusion criteria were neurological disease, history of pelvic or perineal trauma / surgery, history of previous pelvic radiation, psychotic disease or on antipsychotic drugs, drug abuse and males who had documented treatment with androgen deprivation therapy. We divided the men into 3 groups: first, 125 cyclists with a cycling period of more than 1 year before the study, cycling at least 3 days per week and for at least 20 minutes per session[7]; second, 125 males who exercised by running and matched the equivalent criteria, and third, 125 males who did not exercise or exercised but did not match with the criteria (Figure 1A). The study design was approved by The Ethics Committee of Rajavithi Hospital.

The International Index of Erectile Function (IIEF-15) questionnaire[8] was sent to cycling clubs, running clubs and office men. All the men were interviewed by trained staff to gather information and were required to give written informed consent. In the cycling group, we also collected bicycle data, which included bicycle type (road bike vs. mountain bike, Figure 2), bicycle fit (basic fit vs. full fit, Figure 3), and saddle.

Type (standard vs. central cut-out) as Figure 4, cycling position (30, 60 and 90 degrees) as Figure 5, duration of cycling per session (20-60 minutes, 1-2 hours and more than 2 hours) and duration since starting to cycle (1-2 years, 2-5 years, 5-10 years and more than 10 years) (Figure 1B).

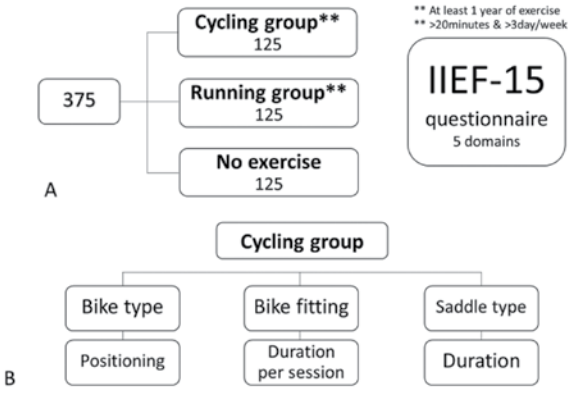

Figure 1 Flow of the patients

Figure 2
Road bike and mountain bike

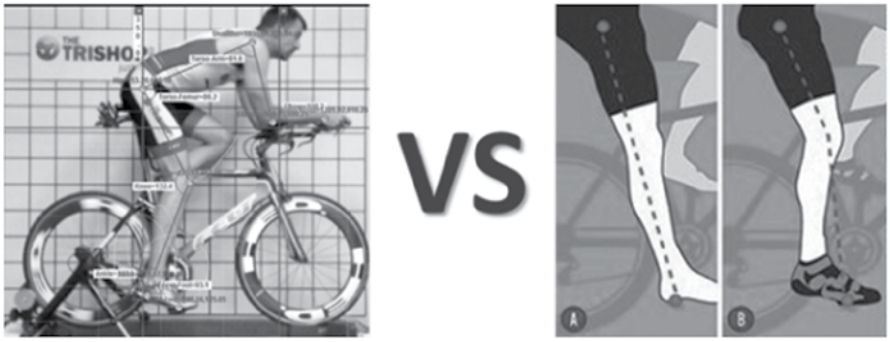

Figure 3
Full fit and basic fit

Figure 4
standard and central cut-out saddle

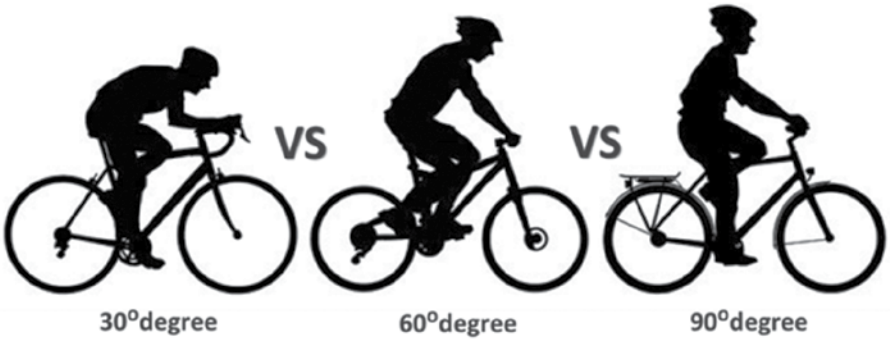

Figure 5
Cycling position

2. Questionnaire

A Thai version of the IIEF-15 questionnaire was used to evaluate men's sexual health in this study, which was divided into 5 domains: erectile function domain, orgasmic function domain, sexual desire domain, intercourse satisfaction domain, and overall satisfaction domain.

3. Statistical analysis

The statistical analysis software was Statistical Package for Social Sciences (SPSS) version 17.0. Descriptive statistics are shown as a number, percentage, mean, median, and standard deviation. About inferential statistics: quantitative data comparison used the Student T-test and ANOVA with normal distribution data and the Mann-Whitney U test with abnormal distribution. Qualitative information comparison used the Chi-square test/ Fisher Exact test. P-value less than 0.05 was considered to indicate statistical significance.

Results

A total of 375 males completed the questionnaire and were included in the assessment. The mean age of males in the cycling group, running group and no exercise group were 44.5±14.5, 44.8±14.2 and 44.7±13.9 years old, respectively. There were no significant differences between the 3 groups in age, comorbidities, smoking and alcohol drinking status. Men in the no exercise group had a higher BMI when compared with both the cycling and running groups (25.9±2.8 vs. 23.3±2.3 vs. 23.8±2.3; p<0.001). Demographic data are shown in Table 1.

The IIEF-15 scores in the erectile function domain were 22.14±4.54, 21.83±4.52 and 19.65±5.55 for males in the cycling group, males in the running group, and males in the no exercise group, respectively. In the no exercise group, erectile function score was lower than in both the cycling and running groups (p<0.001), but there was no significant difference

Table 1. Comparison of age, BMI, comorbidities, and habits between the 3 groups

Characteristics	No exercise (n=125)	Running (n=125)	Cycling (n=125)	p-value
Age (years) Mean±S.D.	44.7±13.9	44.8±14.2	44.5±14.5	0.988
BMI (kg/m^2) Mean±S.D.	25.9±2.8A	23.8±2.3B	23.3±2.3B	< 0.001*
Diabestes (%)	17 (13.6)	14 (11.2)	7 (5.6)	0.099
Hypertension (%)	37 (29.6)	28 (22.4)	22 (17.6)	0.077
CVD (%)	5 (4.0)	2 (1.6)	2 (1.6)	0.359
Alcohol drinking (%)	39 (31.2)	31 (24.8)	27 (21.6)	0.192
Smoking (%)	27 (21.6)	28 (22.4)	23 (18.4)	0.712

BMI: Body mass index, CVD: Cardiovascular disease

between the cycling group and running group. There were no clinical significant differences between the 3 groups in the orgasmic function domain, sexual desire domain, intercourse satisfaction domain and overall satisfaction domain (Figure 6).

For the bicycle factors: there was no clinical significance in all the domains of IIEF-15 score between road bike and mountain bike, full fit and basic fit, standard saddle and saddle with central cut-out. For cycling position: the 30-degree position showed higher IIEF-15 score in all the domains, but there was no difference between the 60- and 90-degree positions. For cycling duration: for both duration per session and duration since starting to cycle, there were no clinical significant differences in all the domains in IIEF-15 score except in the orgasmic function domains which were significantly lower in cyclists who cycled more than 2 hours per session. Details are shown in Table 2.

Discussion

Many studies have reported exercise to be associated with better erectile function in men[2,9] but the reports on sexual health problems related to cycling vary considerably. Previous studies have reported the long-distance cycling effects on erectile dysfunction in long-distance cyclists that took 3 months to return to normal after quitting cycling[4,10]. Some studies have shown that cycling has no association with ED[11]. Our data confirmed that there is no association between cycling and ED. Both the cycling group and running group had higher IIEF-15 compared with the no exercise group.

In all domains of IIEF-15, erectile function decreased with age in all groups. In the no exercise group, erectile functions were lower compared to the exercise groups in both cycling and running. In the younger age subgroup, there were no differences between the 3 groups. The clinical significant differences started from aged 31-40 years and increased with age. This supports the theory of ED associated with atherosclerosis[12] that erectile function improves in men who exercise regularly.

In addition, for the overall satisfaction domain, the no exercise group was lower compared to both the exercise groups, implying that exercise not only improves physical health but also improves both mood and emotional state[13].

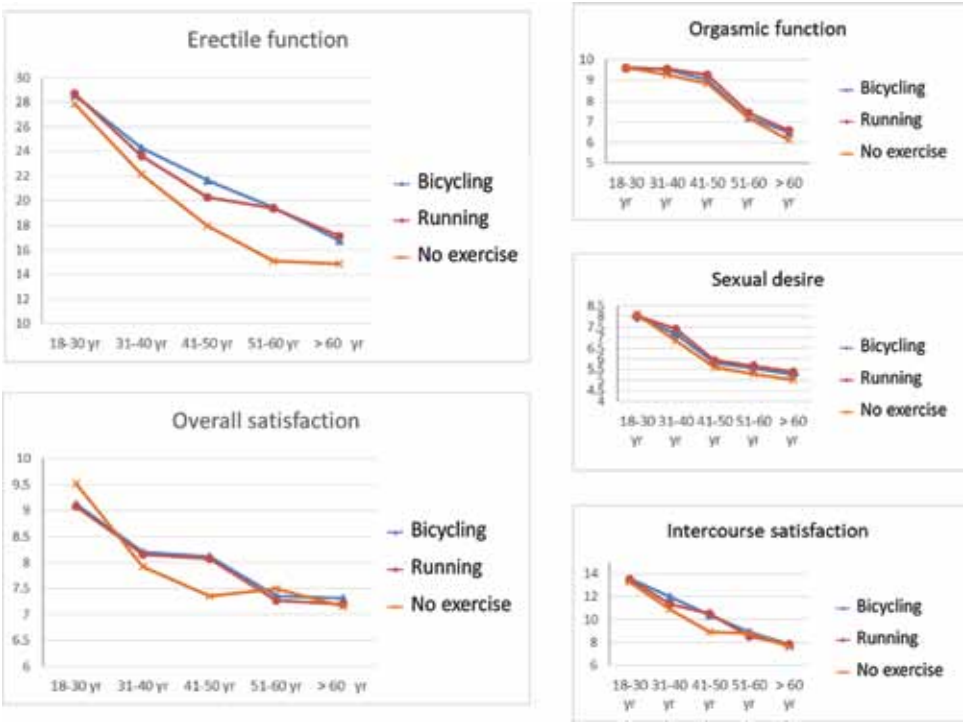

Figure 6
IIEF-15 score in each domain of the 3 groups

For the results from the bicycle factors that affect men's sexual health, the cycling group showed no clinical significance of IIEF-15 in bike type, bike fit, saddle type and duration of cycling. Cycling at the 30-degree position showed lower IIEF-15 compared to the 90- and 60-degree positions. In our data, 101 cyclists used the 60-degree position, 21 and 3 cyclists used the 90- and 30-degree positions, respectively (Table 3). All 3 of the cyclists who used the 30-degree position were aged below 40 years and had a full-fit, which may have been the cause of the higher IIEF scores.

Our study is the first study to compare the 3 groups in 1 study. We compared men who exercised by cycling and running, and men who did no exercise at all. The results have contributed to the knowledge of the effects of cycling on erectile function.

The limitations of this study should be highlighted. First, the source of data was questionnaire analysis. Second, the cross-sectional study structure may have affected the validity of the results.

Table 2. Comparison of the average IIEF-15 scores of exercise type and bicycle factor data

	Erectile function		p-value	Orgasmic function		p-value	Sexual desire		p-value	Intercourse satisfaction		p-value	Overall satisfaction		p-value
	Mean	SD		Mean	SD		Mean	SD		Mean	SD		Mean	SD	
Type of exercise			**<0.001***			**0.375**			**0.151**			**0.057**			**0.547**
No exercise	19.65	5.55	A	8.22	1.57		6.18	1.33		9.90	2.17		7.90	1.07	
Running	21.83	4.52	B	8.49	1.47		6.49	1.24		10.34	2.13		7.96	0.83	
Cycling	22.14	4.54	B	8.38	1.45		6.35	1.23		10.54	2.22		8.02	0.85	
Bicycle type			**0.852**			**0.369**			**0.255**			**0.795**			**0.489**
Road bike	22.30	4.60		8.13	1.63		6.09	1.24		10.43	2.41		7.91	0.85	
Mountain bike	22.11	4.54		8.43	1.40		6.41	1.23		10.57	2.19		8.05	0.85	
Bicycle fitting			**0.514**			**0.805**			**0.824**			**0.478**			**0.922**
Full fitting	23.00	5.40		8.27	1.68		6.27	1.35		11.00	2.61		8.00	0.77	
Basic fitting	22.06	4.46		8.39	1.43		6.36	1.23		10.50	2.19		8.03	0.86	
Saddle type			**0.768**			**0.362**			**0.482**			**0.550**			**0.993**
Standard	22.14	4.57		8.36	1.44		6.37	1.23		10.52	2.21		8.02	0.85	
Central cut-out	22.33	3.79		9.00	1.73		5.67	1.53		11.33	3.06		8.00	1.00	
Cycling's position			**0.001***			**0.027***			**0.002***			**0.001***			**0.052**
30 degree	28.33	2.89	A	10.00	0.00	A	7.67	0.58	A	13.67	0.58	A	8.67	0.58	
60 degree	22.54	4.50	A	8.42	1.45	B C	6.48	1.26	A	10.73	2.24	A	8.08	0.89	
90 degree	19.33	3.29	B	7.95	1.36	C	5.57	0.68	B	9.19	1.36	B	7.67	0.48	
Duration per session			**0.600**			**0.024***			**0.321**			**0.453**			**0.522**
20-60 minute	21.98	4.54		8.47	1.46	A	6.44	1.22		10.38	2.14		7.97	0.85	
1-2 hour	22.09	4.55		8.47	1.40	A	6.44	1.25		10.56	2.20		8.03	0.82	
>2 hour	20.17	3.87		6.83	1.72	B	5.67	1.37		9.50	2.51		7.67	0.82	
Duration since start cycling			**0.267**			**0.082**			**0.025***			**0.126**			**0.242**
1-2 year	21.94	4.51		8.45	1.42		6.42	1.20	A B	10.43	2.17		8.01	0.83	
2-5 year	23.07	4.45		8.67	1.42		6.77	1.38	A	10.93	2.07		8.03	0.93	
5-10 year	19.20	5.72		7.00	1.87		5.60	1.14	B C	9.20	2.77		7.40	0.55	
>10 year	19.75	3.30		7.25	1.89		5.00	0.82	C	8.75	1.50		7.50	0.58	

Table 3. Distribution of each cycling factor

	Total	
	n	%
Bicycle type		
Road bike	23	6.1%
Mountain bike	102	27.2%
Bicycle fitting		
Full fit	11	8.8%
Basic fit	114	91.2%
Saddle type		
Standard	122	97.6%
Central cut-out	3	2.4%
Cycling position		
30 degree	3	2.4%
60 degree	101	80.8%
90 degree	21	16.8%
Duration per session		
20-60 minutes	128	51.2%
1-2 hour	116	46.4%
> 2 hour	6	2.4%
Duration since starting to cycle		
1-2 year	211	84.4%
2-5 year	30	12.0%
5-10 year	5	2.0%
> 10 year	4	1.6%

Conclusion

Both cycling and running can improve erectile function when compared with men who do not exercise. Furthermore, cycling has no hazardous effect on men's sexual health.

References

1. Kodama S, Saito K, Tanaka S, Maki M, Yachi Y, Asumi M, et al. Cardiorespiratory fitness as a quantitative predictor of all-cause mortality and cardiovascular events in healthy men and women: a meta-analysis. Jama. 2009;301:2024-2035.
2. Hsiao W, Shrewsberry AB, Moses KA, Johnson TV, Cai AW, Stuhldreher P, et al. Exercise is associated with better erectile function in men under 40 as evaluated by the International Index of Erectile Function. The journal of sexual medicine. 2012;9:524-530.
3. Dailynews.co.th [Internet]. Trends 'bike' to popularize of Asian. [updated 2013 November 27; cited 2017 Sep 17]. Available from: https://www.dailynews.co.th/article/197610
4. Desai K, Gingell J. Hazards of long distance cycling. BMJ: British Medical Journal. 1989; 298:1072.
5. Sommer F, König D, Graf C, Schwarzer U, Bertram C, Klotz T, et al. Impotence and genital numbness in cyclists. International journal of sports medicine. 2001;22:410-413.
6. Sommer F, Schwarzer U, Klotz T, Caspers H-P, Haupt G, Engelmann U. Erectile dysfunction in cyclists. European urology. 2001;39:720-723.
7. Haskell WL, Lee I-M, Pate RR, Powell KE, Blair SN, Franklin BA, et al. Physical activity and public health: updated recommendation for adults from the American College of Sports Medicine and the American Heart Association. Circulation. 2007;116:1081.
8. Rosen RC, Riley A, Wagner G, Osterloh IH, Kirkpatrick J, Mishra A. The international index of erectile function (IIEF): a multidimensional scale for assessment of erectile dysfunction. Urology. 1997;49:822-830.
9. Esposito K, Ciotola M, Giugliano F, Maiorino MI, Autorino R, De Sio M, et al. Effects of Intensive Lifestyle Changes on Erectile Dysfunction in Men. The Journal of Sexual Medicine [Internet]. Elsevier BV. 2009;6:243-250. Available from: http://dx.doi.org/10.1111/j.1743-6109.2008.01030.x
10. Andersen KV, Bovim G. Impotence and nerve entrapment in long distance amateur cyclists.

Acta Neurologica Scandinavica. 1997;95:233-240.

11. Baek S, Lee SY, Kim JM, Shin E, Kam S, Jung HC. Bicycle riding: impact on lower urinary tract symptoms and erectile function in healthy men. International neurourology journal. 2011;15:97.
12. Kloner RA, Speakman M. Erectile dysfunction and atherosclerosis. Current Atherosclerosis Reports [Internet]. Springer Nature. 2002;4:397–401. Available from: http://dx.doi.org/10.1007/s11883-002-0078-3
13. Penedo FJ, Dahn JR. Exercise and well-being: a review of mental and physical health benefits associated with physical activity. Current Opinion in Psychiatry [Internet]. Ovid Technologies (Wolters Kluwer Health). 2005;18:189–193. Available from: http://dx.doi.org/10.1097/00001504-200503000-00013